

REMARKS

Initially, Applicant would like to express his appreciation to the Examiner for the detailed Official Action provided.

Upon entry of the above amendments, newly added claims 8-10 will have been submitted for consideration. Claims 1-10 are currently pending. Applicant respectfully requests reconsideration of the outstanding rejections, and allowance of all the claims pending in the present application.

In the Office Action of April 19, 2004, claims 1, 2 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Brezoczky et al. (U.S. Patent No. 5,351,229) in view of Jutte et al. (U.S. Patent No. 6,147,056) and Kamiyama et al. (U.S. Patent No. 6,043,940). Applicant respectfully traverses this rejection.

The present invention relates to an objective lens for an optical pick-up that converges a parallel light beam onto the recording layer of an optical medium. Claim 1 recites that the objective lens comprises a single glass plano-convex lens having a rotationally symmetrical convex aspherical surface at the incident side of the parallel light beam, and is configured to maintain a numerical aperture of at least 0.7.

Brezoczky is directed towards an optical recording system including an objective lens. Brezoczky does not disclose that the lens is made of glass, nor does the reference disclose that the surface at the incident side of the parallel light beam is rotationally

symmetrical or aspherical. In fact, Brezocaky explicitly discloses the lens to be spherical. Brezoczky also fails to disclose the recited numerical aperture value of the lens. The Examiner states that, in view of Jutte et al., it would have been obvious to modify Brezoczky's lens such that it is made of glass, based on considerations such as cost, availability and reliability.

Jutte is directed towards an optical pickup including an objective lens. Although Jutte refers to a lens disclosed therein as being plano-convex, the lens does not have a flat surface at a side facing an optical medium, as recited in claim 1. Jutte clearly discloses, in Figure 2 and col. 4, lines 46-48, that the surface facing the optical medium is concave. Jutte also fails to disclose that the surface at the incident side of the parallel light beam is rotationally symmetrical. Additionally, Jutte fails to disclose that the numerical aperture is at least 0.7, as recited in claim 1. In contrast, the numerical aperture of Jutte's lens is, at most, 0.606. See col. 5, lines 10-17. However, the Examiner asserts that, in view of col. 1, lines 12-58 of the Kamiyama reference, it would have been obvious to modify the lens arrived at by combining the teachings of the Brezoczky and Jutte references, such that the numerical aperture is at least 0.7, in order to increase recording density.

The section of the Kamiyama reference cited by the Examiner, col. 1, lines 12-58, discusses the need to raise the surface recording density of prior art optical recording systems. It mentions that the surface recording density can be raised by improving the

numerical aperture of a lens to 0.7. However, Kamiyama et al. relates to a hemispheric lens rather than a lens having an aspherical convex surface that is rotationally symmetrical. Thus, Kamiyama et al. cannot provide a teaching of a glass lens having an aspherical surface configured to have a numerical aperture of at least 0.7.

In view of the above, Applicants respectfully submit that the Examiner's rejection of claim 1 is inappropriate. Not a single one of the prior art references cited by the Examiner disclose a rotationally symmetrical aspherical surface, which is explicitly recited in each claim. Moreover, it is inappropriate to conclude that one of ordinary skill in the art would arrive at a single glass plano-convex lens having a rotationally symmetrical convex aspherical surface and a flat surface, and configured to maintain a numerical aperture of at least 0.7, by combining the features of the references cited. The numerical aperture and the shapes of the lens surfaces facing the light beam and the optical medium are related to one another and together define the optical characteristics of the lens.

Moreover, the Kamiyama reference refers to a solid immersion lens while the Brezoczky and Jutte do not. The Examiner has set forth no basis or motivation for haphazardly combining such diverse disclosures to arrive at the recited combination. Additionally, the Examiner cannot, where the Brezoczky reference is silent as to numerical aperture and the Jutte reference discloses a numerical aperture not consistent

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with the claim recitations, cure these deficiencies by merely showing that a numerical aperture of 0.7 is known. The Examiner has provided no rationale that would result in the proposed combination teaching the lens as defined in the claims. Applicants submit that the lens recited in claim 1 is defined by a unique, non-obvious combination of physical characteristics.

Accordingly, Applicant submits that the rejection of claim 1 under 35 U.S.C. § 103 is improper for each and certainly for all of the above reasons. Applicant respectfully requests reconsideration and withdrawal of the rejection, and an early indication of allowance of this claim. Dependent claims 2 and 6 are also submitted to be in condition for allowance at least in view of their dependence on claim 1.

The Examiner also rejected claims 3 and 4 under 35 U.S.C. §103(a) as being unpatentable over Brezoczky et al. in view of Jutte et al. and Kamiyama et al., and further in view of well known prior art and Kiriki et al. (U.S. Patent No. 6,349,083). Dependent claims 3 and 4 are submitted to be in condition for allowance at least in view of their dependence on claim 1.

The Examiner also rejected claims 5 and 7 under 35 U.S.C. §103(a) as being unpatentable over Brezoczky et al. in view of Jutte et al. and Kamiyama et al., and further in view of Nakaoki et al. (U.S. Patent No. 5,978,320). Claim 5 includes all of the limitations of claim 1, and is submitted to be in condition for allowance for at least all of

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the same reasons. Dependent claim 7 is submitted to be in condition for allowance at least in view of its dependence on claim 5.

Newly added claims 8 and 9 recite that the objective lens does not include a solid immersion lens. Newly added claim 10 recites that the optical pick-up includes an actuator that moves the objective lens in the direction of the optical axis. These claims further distinguish Applicants' invention from prior art optical pick-ups utilizing solid immersion lens. Claims 8-10 are submitted to be in condition for allowance at least in view of their dependence on claims 1 and 5.

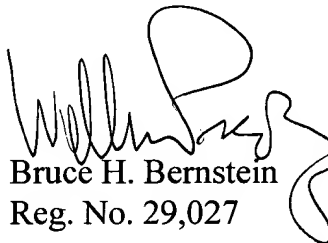
Based on the above, it is respectfully submitted that this application is now in condition for allowance, and a Notice of Allowance is respectfully requested.

SUMMARY AND CONCLUSION

Entry and consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate. Applicant has made a sincere effort to place the present application in condition for allowance and believes that he has now done so.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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